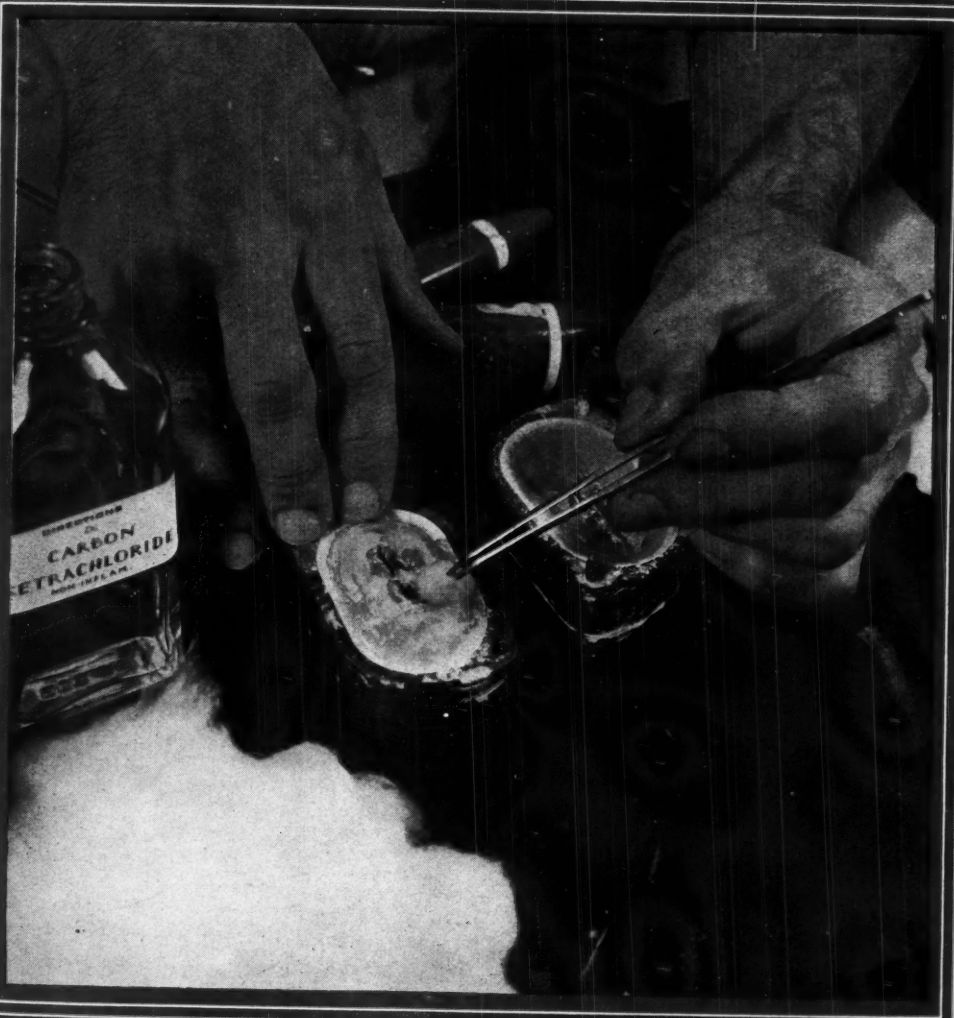
THE DENTAL Digest



FEBRUARY 1944

The Veri-chrome system of tooth color selection by contrast . . .

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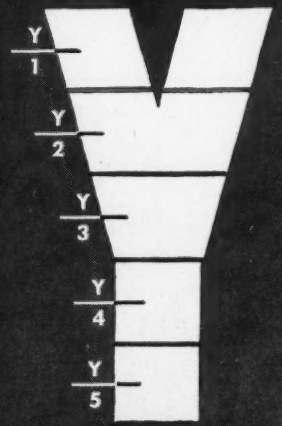


The Veri-Chrome System of Contrast-Comparison is the simplest and most accurate method of selecting tooth colors.

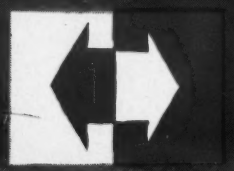
Here is the procedure:

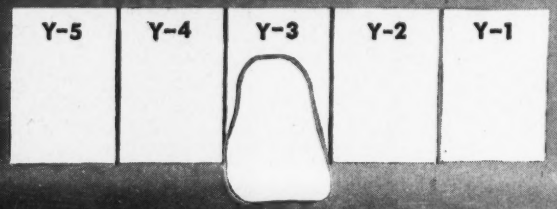
First, without using the Guide, judge the general classification of the hue. Does the tooth appear to be yellow . . . or yellow-red?

Then estimate the degree of saturation of color of the tooth. Assume that the tooth appears to be yellow of approximate saturation #2 (Veri-Chrome color Y2).

Now use the Color Guide, but draw out R2 instead of Y2. Compare R2 to the natural tooth. If the natural tooth appears yellow by contrast—then the original judgment of hue was correct. If it doesn't appear yellow by contrast—then the original judgment of hue was incorrect. If the judgment of yellow was correct, then proceed to ascertain the degree of saturation by the same method of Contrast-Comparison. The tooth was judged Y2. Therefore, compare the natural tooth with Y1, which is less saturated, or Y3, which is more saturated.

By this method of *Contrast-Comparison* both hue and saturation can be quickly and accurately determined. Selection by contrast is possible only with the Veri-Chrome Color Guide because of the systematic arrangement of hues and the progressive saturations in each hue.





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lding methacrylates, except in certain instances, are plasticized to rmit flow in compression, transfer, and injection molding.

ey are not made to be used with monomer.

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nomer adulteration causes three things which ultimately—always ccur.

Bleaching.

Porousness.

Change in color.

re will never be bleaching, porousness, change in color, in mouth of a well processed JUSTI-TONE Denture; the polymer is a pure thacrylate made especially for Denture purposes—the pure nomer is not adulterated.

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TIME + HEAT + PRESSURE	TIME + HEAT + PRESSURE	TIME + HEAT + PRESSURE
Monomer—Polymer Cementation. Poor Appearance.	**Molecules Separated by Adulterants. Possible Good Appearance.**	**Long Chain Molecular Formation. Good Appearance.**
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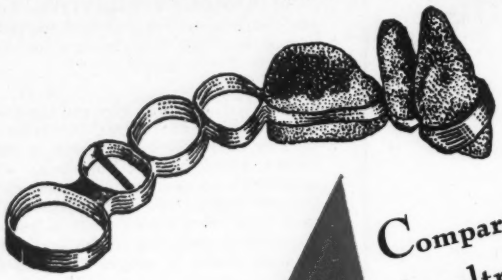

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THE DENTAL Digest

VOL. 50 NO. 2

FEBRUARY 1944

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(In Military Service)

RUTH K. BARNHART, *Assistant Editor*

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About Our CONTRIBUTORS

WALTER F. BARRY, JR., D.D.S. (Thomas W. Evans Dental Institute, University of Pennsylvania) is in general practice. He presents here a technique for constructing a close-bite gold and acrylic bridge.

CAPTAIN FREDERICK F. MOLT (DC), and LIEUTENANT NEWELL O. FEELEY (DC), USNR, presented INSTRUCTIONS IN ROENTGENOGRAPHIC PROCEDURES FOR DENTAL OFFICERS in the January issue of THE DIGEST. Their topic this month is MEDICAL ROENTGENOGRAPHY WITH DENTAL MACHINES.

NEWMAN D. WINKLER, D.D.S. (Columbia University, 1924) is a general practitioner. Doctor Winkler has written several articles for THE DIGEST on the use of acrylic. This month he describes a technique for constructing acrylic crowns re-inforced with metal.

CHESTER J. HENSCHEL, D.D.S. (New York University College of Dentistry, 1929) presents three practical ideas in his series of CLINICAL AND LABORATORY SUGGESTIONS: PROLONGING THE USEFULNESS OF CONTRA-ANGLES; LONG-LASTING X-RAY DEVELOPING SOLUTIONS; and X-RAY DEVELOPER REPLENISHER FOR CONSTANT BRILLIANT CONTRAST.

IRVIN H. ANTE, D.D.S. (Royal College of Dental Surgery, Toronto, 1914) emphasizes prosthetics in his general practice. His former DIGEST articles are: IMPRESSION TECHNIQUE FOR THE EDENTULOUS MANDIBLE, December, 1941; IMMEDIATE DENTURE SERVICE, February, 1942; IMPRESSION TECHNIQUE FOR THE EDENTULOUS MAXILLA, April, 1942. In this issue he discusses a method of REBASING A COMPLETE MANDIBULAR DENTURE.

Close-Bite Bridges of Gold and Acrylic

WALTER F. BARRY, JR., D.D.S., Madison, New Jersey

DIGEST

Dental literature in the last several years has been deluged with articles for and against the use of acrylic in tooth restorations. These articles have dealt chiefly with the use of acrylic in the construction of jacket crowns and inlays. After two years of experimenting and of using this material, I am convinced that, in its proper place and with proper preparation, methylmethacrylate as we have it today is one of the greatest advances in dentistry since the inception of the gold inlay casting technique.

This article describes a technique for constructing a close-bite gold and acrylic bridge to replace missing lower first and second molars.

THE ACCOMPANYING illustrations show a condition which is encountered too frequently. Loss of the lower teeth with failure to replace them has caused migration and tipping of the remaining lower teeth and extrusion of the upper molars (Fig. 1).

Treatment of Upper Molars

The upper molars which had extruded were ground down by means of heatless (or diamond) stones until the molars were slightly below the normal curve of Spee (Fig. 1). The second molar was then prepared for a cast gold crown and the first molar for a gold onlay (Fig. 2). The castings were finished and inserted.

Usually, in a condition of this type, there is little bulk of the casting over the buccal and lingual cusps of the prepared teeth. When such is the case, acrylic crowns or inlays are contraindicated.

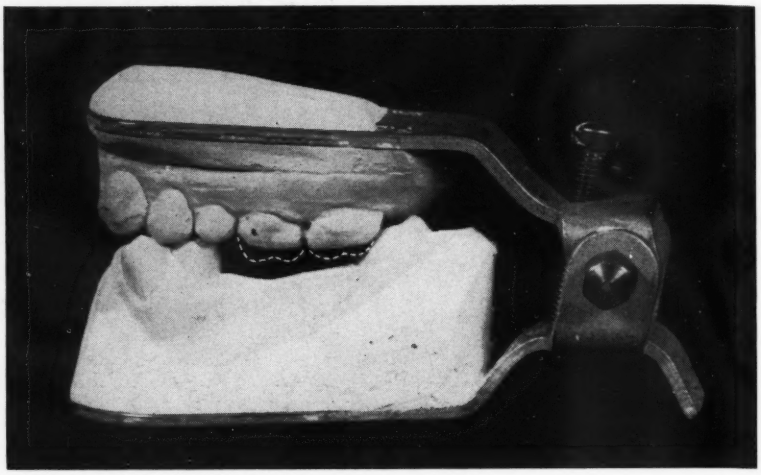


Fig. 1—The broken lines indicate the amount of tooth structure removed from the extruded molars.

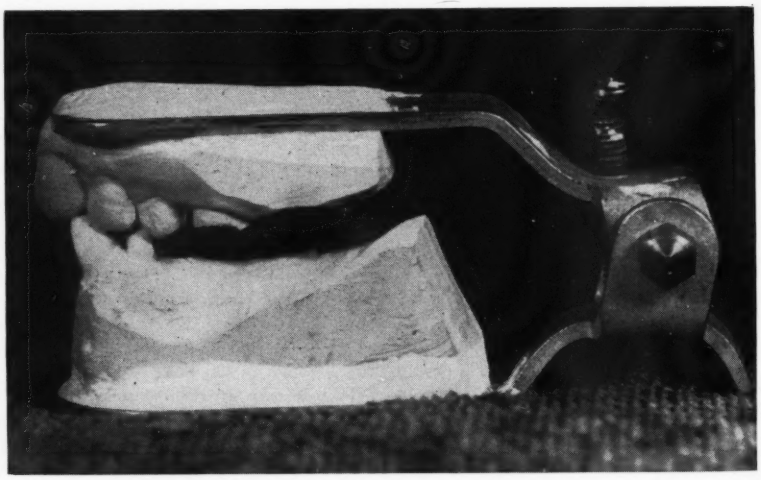


Fig. 2—Upper replacements in position. Lower preparations indicated.

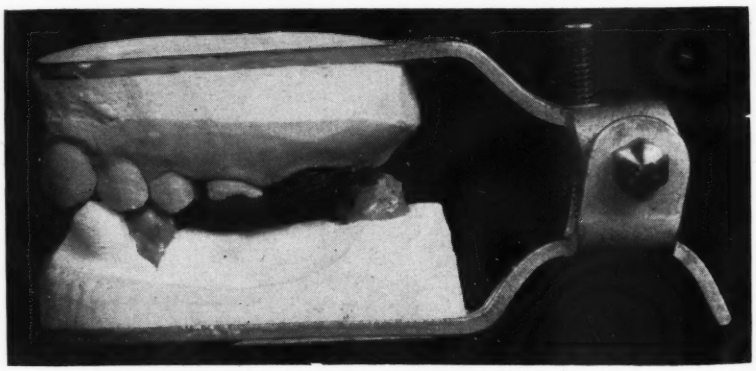


Fig. 3—Upper replacements in position. Lower dies in place.

Treatment of Lower Abutment Teeth

The third molar was prepared for a cast gold crown, and the second bicuspid was prepared for a three-quarter crown (Figs. 2 and 3). Because of the method of construction of the framework of the bridge, gold was the only material suitable for the construction of these abutments.

Construction of Bridge

1. A wax bite and a plaster impression were taken of the lower teeth with the abutment crowns in place.

2. The impression was poured in stone and articulated with the upper teeth.

3. A thin band of casting wax about 3 mm. wide was adapted to the crest of the ridge and continued into a lock rest which was cut into the distal of the bicuspid crown. The wax was carried to and extended over the middle three-fourths of the mesial surface of the molar crown. This afforded a suitable contact for soldering.

4. Two points which would be directly under the center of the occlusal surfaces of the pontics were marked on the wax saddle. These points were determined by referring to the articulation points of the upper teeth with the lower teeth if the bridge were in place.

5. Posts of casting wax were attached at the marked points. These posts were of sufficient height to occlude with the upper teeth; they were roughly cylindrical and measured about 4 mm. in diameter.

6. The wax saddle was thickened supero-inferiorly to about 3 mm.

7. The two posts were then thinned in their gingival two-thirds until a "mushroom" shape was attained.

8. When the posts were satisfactorily thinned, the thickened saddle of wax was undercut throughout its entire length both buccally and lingually.

9. The resultant wax frame was then removed, cast, and soldered to the molar crown with the cast lock rest in position on the bicuspid (Fig. 4).

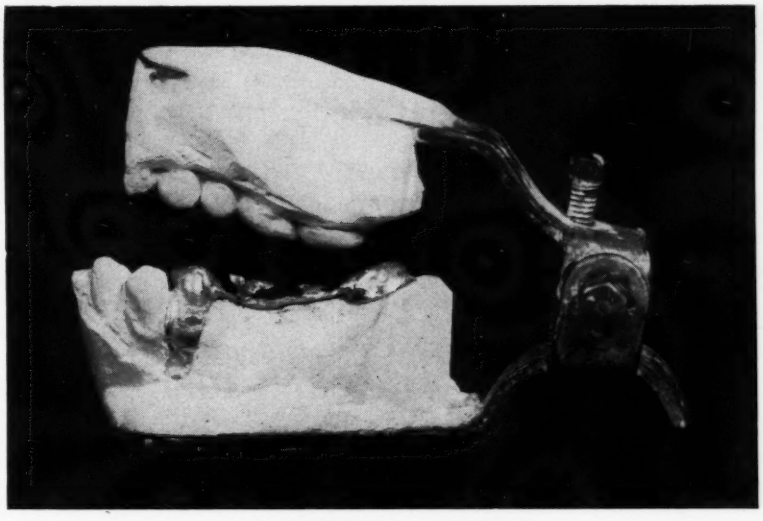


Fig. 4—Bridge frame assembled.

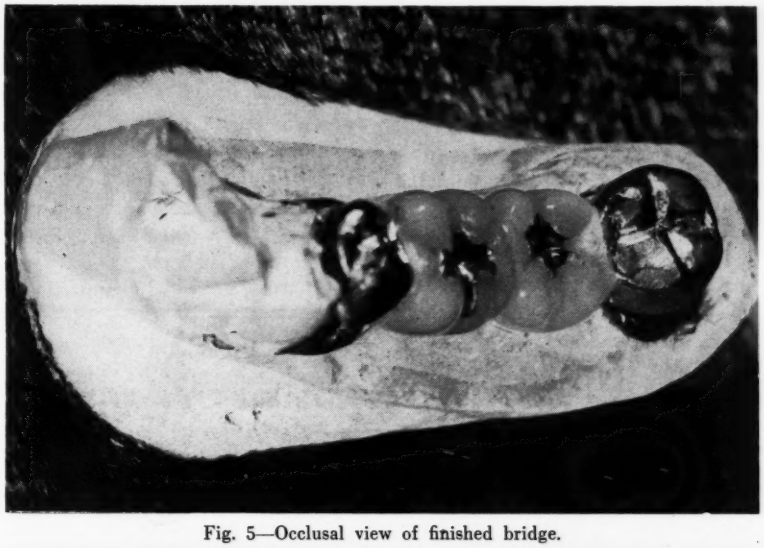


Fig. 5—Occlusal view of finished bridge.

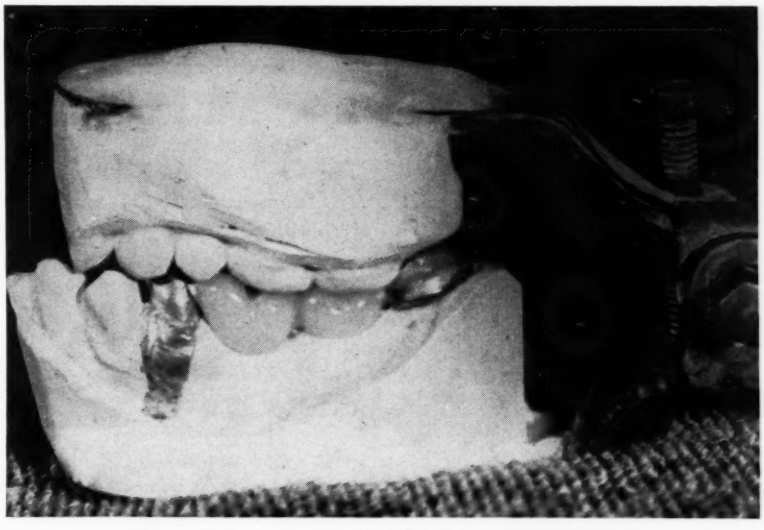


Fig. 6—Lateral view showing occlusion of finished bridge.

Construction of Pontics

1. The pontics were waxed up to contour and occlusion around the cast frame on the model. This gave a gingival (ridge) surface of approximately one-third gold and two-thirds wax.

2. The carving and the frame were then removed and invested.

3. Acrylic pontics were processed directly on the frame.

4. After finishing and polishing, the result was a close-bite bridge of maximum strength with a natural looking gold occlusal "inlay" on each pontic (Figs. 5 and 6).

It should be noted that despite the routine use of acrylic material for all forms of pontic teeth in bridges, non-tolerance of oral tissues to this material has not been encountered.

23 *Green Village Road.*

We Can't Pay You, But—

NO DENTAL author can ever be *paid* for a valuable technical or scientific article. The value of such material is above a monetary basis. In the preparation of a technical article, however, an author often expends money for drawings, photographs, models, or graphs. We would like to help defray some of these expenses.

Until further notice, THE DENTAL DIGEST *will allow* $25.00 *toward the cost of the illustrations provided by the author of every article accepted.*

Before the year is out about 20,000 of our dental colleagues will be in military service. Few of them will have the time, the facilities, or the opportunities to develop new techniques or to write for the dental literature. They will be eager, however, to read of the new developments in dental science and art.

Writing articles for publication in technical journals can be a contribution to the war effort, because that is how to help our dental officers in the Army and Navy keep abreast of technical advancements, and it is one way to improve the skill and services of civilian dentists on the home front.

If you have a constructive idea, an innovation, a new result of tried and proved experiment, put it down in writing, illustrate it, and send the material to: The Editor of THE DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

We hope that you will accept this invitation!

Identification by Means of Dentures

FRANK E. JEFFREYS, Lieutenant Commander (DC), U. S. N.

Any medical or dental officer who has had to identify a decomposed or mutilated body knows the difficulty encountered, and appreciates the importance of an accurate dental abstract. Although it is never easy to identify a body by checking the mouth conditions against the dental chart, it is the most accurate method. This accuracy, however, diminishes as the number of missing teeth increases, until absolute identification by such a method becomes impossible in the edentulous mouth.

A technique is described whereby acrylic resin dentures may be inscribed with the owner's name and other essential data:

1. The materials necessary are a sheet of lightest weight onionskin paper and a sheet of carbon paper.

2. The onionskin, as the original, and the carbon paper, reversed as the second sheet, are inserted in the typewriter. The carbon paper is reversed so that the print will be transferred to the back of the original onionskin sheet, thus causing the type to appear in reverse.

3. Suggested essential data consist of the patient's name, rank or rate, service number, ship or station, the mold and shade of the teeth used, and the date of making the appliance.

4. The onionskin is trimmed at the edge of the printing in short, narrow strips. The narrowness of the strips helps prevent any folding or wrinkling as the technique is carried out.

5. The case is prepared and packed with acrylic in the usual manner.

6. After the last trial closure, before the final closing of the flask, the typed strips are dampened with water and are placed carefully on the soft acrylic with the typed side up. They should be arranged just as desired in the finished denture.

7. The flask is closed carefully and the case processed. The pressure from closing transfers the carbon deposit from the onionskin into the soft acrylic in which it is cured.

8. After recovery of the processed denture, the paper strips may be scrubbed off gently. The inscribed identification remains in the denture.

—from Medical and Surgical Devices, *U.S.N. Med. Bul.*, 42:194 (January) 1944.

Medical Roentgenography with Dental Machines*

CAPTAIN F. F. MOLT and LIEUTENANT N. O. FEELEY,
DENTAL CORPS, U. S. N. R., Great Lakes, Illinois

DIGEST

Directions are given for the use of dental machines in taking roentgenograms of body structures other than the mouth, and for the construction, care, and use of the cardboard film holder and the cassette with intensifying screens. Although the capacity of dental machines in taking medical roentgenograms is limited, they can be used effectively when larger machines are not available.

THE DENTAL officer on independent duty away from a base hospital or aboard ship is often called upon to utilize the dental machine for emergency roentgenography of the extremities and other body structures. The results in many instances will be excellent, but there are definite limitations to the capacity of the dental machine for medical roentgenography. When no larger hospital machines are available, the best possible must be done with the equipment at hand. Knowledge of the principles of construction, use, and care of cardboard film holders and of cassettes with intensifying screens is essential in obtaining satisfactory roentgenograms.

Technique for Medical Roentgenography

The following directions attempt to standardize and simplify the technique wherever possible so that little difficulty should be experienced in securing satisfactory results:

1. Unscrew and remove the pointed cone from the x-ray head to secure additional spread of rays.

2. Use 24-inch target-film distance for exposures (exceptions: chest, shoulder, and pelvis). The target-film distance is the measured distance between the tube center of the x-ray head and the film.

3. Place the film parallel to the deck [the floor] whenever possible.

4. Direct the central ray perpendicular to the film.

5. Use the cardboard film holder for roentgenography of the following structures: (1) fingers and hand, (2) wrist, (3) elbow, (4) ankle, and (5) foot and toes.

6. Use the metal cassette with intensifying screens for roentgenography of the following parts: (1) skull, (2) mandible, (3) shoulder, (4) chest, (5) hip, and (6) knee.

7. Handle the patient with utmost care:

a) Exercise extreme care in handling injured parts. Do not attempt to straighten an arm or leg which appears to be broken.

b) Make the patient as comfortable as possible; use pillows or other padding when necessary.

Fig. 1—Patient seated astride footrest, injured part resting on seat of chair. For skull, hand, and elbow.

c) Immobilize the part to be roentgenographed. Be sure that it is lying flat on the supporting surface and is well stabilized. Sandbags are a great aid in giving support to injured parts and in preventing movement. Makeshift sandbags can be made quickly by filling socks about three-fourths full of sand and tying them at one end, or small sacks of salt may be used for this purpose.

d) If possible, keep the patient in the x-ray room until the film is developed because additional views or retakes may be necessary.

Use of Dental Chair

Space in the dental office is usually limited so that the dental chair must serve as a table for positioning the patient. The accompanying sketches will illustrate the flexibility of the dental chair.

Precautions—1. Do not attempt to use the headrest to support the stretcher.

2. Place the patient's head toward the footrest so that the seat of the chair will support the bulk of the weight.

3. After the stretcher is in place, the chair may be tilted to make the patient parallel with the deck.

Technique with Dental Machine

Finger — Posterior-anterior and lateral views:

*This is the second of two articles on roentgenographic procedures by Captain Molt and Lieutenant Feeley. The first appeared in the January issue. The material embraces that prepared for the instruction of dental officers and corpsmen at the United States Naval Training Station, Great Lakes, Illinois.

[1]Target-film distance is the measured distance from the tube center of the x-ray head to the film. Standard 24-inch target-film distance should be used for all medical roentgenograms taken with the dental machine, except roentgenograms of the chest, which are taken at 36 inches.

[2]Exposure times as listed in the technique described are based on the use of Eastman Blue Brand Ultra-Speed Film (5 by 7 and larger), and Eastman Super-Speed Occlusal Dental Film. Alterations of exposure times will be required when other types and speeds of film are used. High-speed intensifying screens are used in the cassette. Screens vary as to speed; therefore, it may be necessary to change exposure times to compensate for this variation. All films should be developed according to the standard time-temperature method: 60° F. for 6½ minutes; 65° F. for 5 minutes; 70° F. for 4 minutes.

Fig. 2—Patient seated astride chair seat, facing back of chair. For skull, hand, and elbow.

1. Occlusal film.
2. Pointed cone removed.
3. Target-film distance:[1] 24 inches.
4. Angulation: 90° (vertical).
5. Exposure time:[2] 1 second.

Hand—Posterior-anterior and oblique views:

1. Film, 5 by 7, in cardboard film holder (no intensifying screens).
2. Pointed cone removed.
3. Target-film distance: 24 inches.
4. Angulation: 90° (vertical).
5. Exposure time: 1½ seconds.

Wrist—Posterior-anterior and lateral views:

1. Film, 5 by 7, in cardboard film holder (no intensifying screens).
2. Pointed cone removed.
3. Target-film distance: 24 inches.
4. Angulation: 90° (vertical).
5. Exposure time: 2½ seconds for posterior-anterior; 3½ seconds for lateral.

Elbow—Anterior-posterior and lateral views:

1. Film, 5 by 7, in cardboard film holder (no intensifying screens).
2. Pointed cone removed.
3. Target-film distance: 24 inches.
4. Angulation: 90° (vertical).
5. Exposure time: 3 seconds for anterior-posterior; 4 seconds for lateral.

Shoulder—Anterior-posterior view:

1. Film, 11 by 14, 8 by 10, or 5 by 7, in metal cassette (with screens).
2. Pointed cone removed.
3. Target-film distance: 24 inches.
4. Angulation: 90° (vertical).
5. Exposure time: 1 second.

Chest—Anterior-posterior or posterior-anterior views:

1. Film, 11 by 14 or 14 by 17, in metal cassette (with screens).
2. Pointed cone removed.
3. Target-film distance: 36 inches.
4. Angulation: 0° (horizontal); patient standing against bulkhead [wall].
5. Exposure time: 1 second.

Hip—Anterior-posterior view:

1. Film, 11 by 14 or 14 by 17, in metal cassette (with screens).
2. Pointed cone removed.
3. Target-film distance: 24 inches.
4. Angulation: 90° (vertical).
5. Exposure time: 1½ seconds.

Knee—Anterior-posterior and lateral views:

1. Film, 5 by 7, in metal cassette (with screens).
2. Pointed cone removed.
3. Target-film distance: 24 inches.
4. Angulation: 90° (vertical).
5. Exposure time: ¾ second.

Ankle—Anterior-posterior and lateral views:

1. Film, 5 by 7, in cardboard film holder (no intensifying screens).
2. Pointed cone removed.
3. Target-film distance: 24 inches.
4. Angulation: 90° (vertical).
5. Exposure time: 4½ seconds for anterior-posterior; 3½ seconds for lateral.

Foot—Anterior-posterior view:

1. Film, 5 by 7, in cardboard film holder (no intensifying screens).
2. Pointed cone removed.
3. Target-film distance: 24 inches.
4. Angulation: 90° (vertical).
5. Exposure time: 3 seconds.

Great Toe—Anterior-posterior and lateral views:

1. Occlusal dental film.
2. Pointed cone removed.
3. Target-film distance: 24 inches.
4. Angulation: 90° (vertical).
5. Exposure time: 2 seconds (other toes, 1½ seconds).

Film Holders and Intensifying Screens

All film holders are basically lead-backed envelopes which protect the film from light and moisture during exposure, and at the same time per-

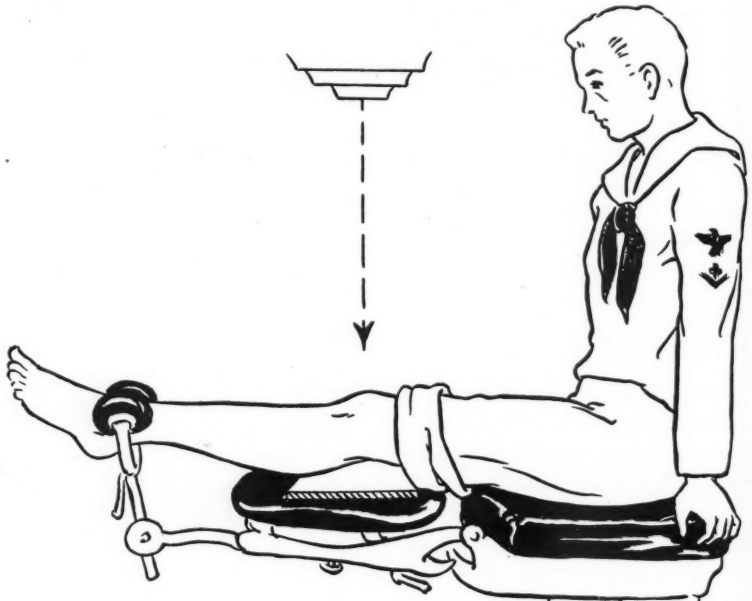


Fig. 3—Patient seated on chair seat, leg extended on reclined back; chair tilted to make leg parallel to deck; headrest adjusted to support ankle. For knee and leg.

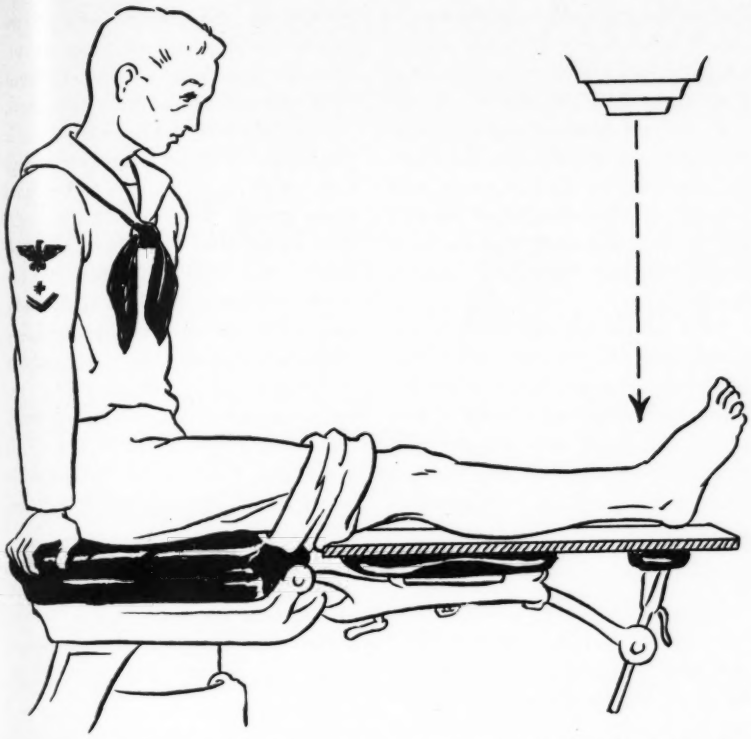


Fig. 4—Same as Fig. 3 except that a board is placed over back of chair and headrest to serve as support for ankle.

mit the unobstructed access of roentgen rays to the film.

Two types of film holders may be used with the dental unit: (1) the cardboard holder, and (2) the metal cassette with intensifying screens. The two holders are similar in principle, but differ in that intensifying screens are used with the cassette.

Cardboard Film Holder—The cardboard holder is the better for roentgenograms of the hand, wrist, elbow, ankle, and foot for the following reasons:

1. Resulting roentgenograms will be clearer and will show greater bone detail.

2. Exposure time is more easily measured when the cardboard holder is used.

3. The cardboard holder is not as easily damaged as is the cassette with intensifying screens. By using the cardboard holder whenever possible, the intensifying screens are reserved for cases in which they are absolutely necessary.

Cassette with Intensifying Screens—The cassette with intensifying screens is the better holder for roentgenograms of the skull, mandible, shoulder, hip, femur, knee, chest and all other bony and soft tissue areas of the trunk. Because longer exposure time is required in taking roentgenograms of these areas of greater thickness, secondary radiation is a disturbing factor. The shorter exposure time permitted by the use of intensifying screens decreases the amount of exposure to secondary radiation, and consequently minimizes the possibility of film fog.

Intensifying Screens—1. Purpose: The primary purpose of the intensifying screen is to shorten the exposure period. The shorter exposure time minimizes film fog from secondary radiation and lessens the danger of prolonged exposure to the patient.

2. Composition: The intensifying screen is a sheet of cardboard coated with a layer of calcium tungstate crystals. Two screens are used inside a cassette and are attached so that the calcium tungstate surfaces are in direct contact with the emulsion on both sides of the film.

3. Action: When subjected to x-radiation, the crystals of calcium tungstate glow with a fluorescent light, causing a luminous image to appear on the screens; the image is recorded on the film. Inasmuch as the film is much more sensitive to this illumination than to direct x-radiation, the time of exposure can be reduced greatly.

4. Use: The intensifying screens are used whenever a part to be roentgenographed is so thick that prolonged exposure to x-radiation is required, or when a short exposure is necessary, as in taking a chest roentgenogram, to prevent movement of an organ.

Loading the Holders—Both the cardboard film holder and the cassette with intensifying screens should be loaded in the darkroom. The only illumination in the darkroom while films are being handled should be the darkroom safelight or ruby (red glass) bulb. When the film is removed from the black paper, it should be kept as far as possible from any light and placed in the holder immediately to prevent light fog. The same principle should be applied in unloading the cardboard holder or cassette: Remove the film from the holder as quickly as possible and

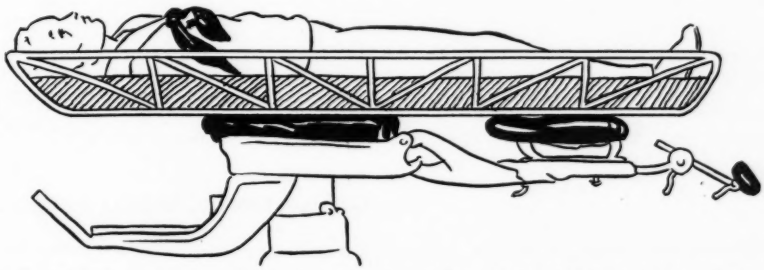


Fig. 5—Chair used as a support for a basket stretcher. A large table top, door, or other wide board may also be used in this manner. Note precautions listed in text.

place it immediately in the developing solution.

1. Loading the Cardboard Film Holder: The usual package, 5 by 7 or larger, contains one dozen films, each film in a separate folder of black paper. The black paper should be left around the film when it is placed in the cardboard holder to serve as added protection against white light. In loading, the film in the black paper shield should be placed under the large flap of orange paper in the holder.

2. Loading the Cassette: The black paper shield should be removed from the film and the bare film placed between the two screens. In unloading, the cassette should be closed and placed in a safe place as soon as the film is placed in the developer.

Care of Holders and Screens—The greatest cause of damage to film holders and intensifying screens is the splashing and dripping of water and solutions in the darkroom. If the following precautions are observed, the cardboard holder, cassette, and intensifying screens should last indefinitely:

1. Care of Cardboard Film Holder:

a) A tear in the flaps of the holder should be patched with paper tape or the holder should be discarded.

b) If the holder is wet, it should be thoroughly dried before loading.

2. Care of Cassette and Intensifying Screens:

a) The cassette should not be opened until the film is ready for loading.

b) A dry towel placed on the loading bench will keep the cassette dry.

c) The hands must be dry for handling the film and the cassette.

d) When the cassette is being unloaded in the darkroom, it must be closed immediately after the film is removed, and placed away from dripping water or solutions.

e) Should drops of water or solutions get onto the screens, the affected areas may be washed gently with a small pad of cotton moistened with water, then thoroughly dried with cotton or gauze before the cassette is closed.

f) When the cassette is not in use, the screens may be protected by keeping a piece of soft black paper between them. Paper taken from around a film will serve this purpose well; black paper is preferred because white paper may be overlooked in loading the cassette.

Comment

Eastman Blue Brand Ultra-Speed Film is one of the many excellent dual-purpose films that may be used either in the cardboard film holder or in the cassette with intensifying screens.

A recent development in film research has produced the Non-Screen Film, a new film which offers many advantages to the civilian dental practitioner. This film is made especially for use in the cardboard film holder and is not to be used in the cassette with intensifying screens. When it is used with the dental machine, the results are in many instances superior to those obtained with the use of speed films.

In the research development of the speed film, two factors had to be considered: (1) sensitivity to direct roentgen radiation, and (2) sensitivity to the fluorescent light of the intensifying screens. Inasmuch as the use of intensifying screens permitted a greater range in roentgenography of all body areas, stress was placed on the development of films of increased sensitivity to fluorescent light rather than to direct radiation.

The Non-Screen Film possesses a sensitivity to direct roentgen radiation which is about five and a half times greater than that of the ordinary speed film. This increased sensitivity not only produces greater clarity of bone detail in thin body areas, but permits roentgenography of thick areas such as the shoulder and hip which would otherwise require the use of intensifying screens. For roentgenography of the skull and lateral jaw, however, the cassette with intensifying screens is still to be preferred.

The technique for the use of Non-Screen Film is the same as outlined here except for a difference in exposure time. The following exposure times are for use with Agfa Non-Screen Film:

Region	View	Exposure time Seconds
Hand	Posterior-anterior	½
	Semilateral	½
Wrist	Posterior-anterior	¾
	Lateral	1
Elbow	Anterior-posterior	1¼
	Lateral	1½
Shoulder[3]	Anterior-posterior	2½
Hip[3]	Anterior-posterior	3½
Knee	Anterior-posterior	3½
	Lateral	3
Ankle	Anterior-posterior	2½
	Lateral	2
Foot	Anterior-posterior	1
	Lateral	2

[3]The exposure times indicated in the chart are for persons of medium size; increase or decrease the time approximately 20 per cent for large or small persons. Except in emergencies, injuries of the shoulder and hip should be referred to a hospital where more satisfactory roentgenograms can be made with the medical machine.

U. S. Naval Training Station

If Your DENTAL DIGEST Is Late

IN WARTIME, magazine mail is delayed because the postal service is overburdened. We mail THE DENTAL DIGEST each month on its scheduled mailing date—the fifteenth of the month of issue. But it is impossible to control the date of delivery to readers. Please be patient if your DENTAL DIGEST is late.

Reinforced Acrylic Crowns

NEWMAN D. WINKLER, D.D.S., New York City

DIGEST

A technique is described for constructing an acrylic crown that is reinforced with metal. The reinforced crown has adequate strength to withstand normal masticatory stresses and is esthetically satisfactory.

NOTHING IS more satisfactory from an esthetic point of view than acrylic for full crowns. Because of the nature of acrylic, however, added bulk is necessary for strength, or reinforcement by another material must be employed. If a metallic substance is used as reinforcement for an acrylic crown, it is expedient to cover any exposed surfaces of the metal with acrylic. I have found that the following technique for the construction of a metal reinforced crown provides great strength and natural tooth color:

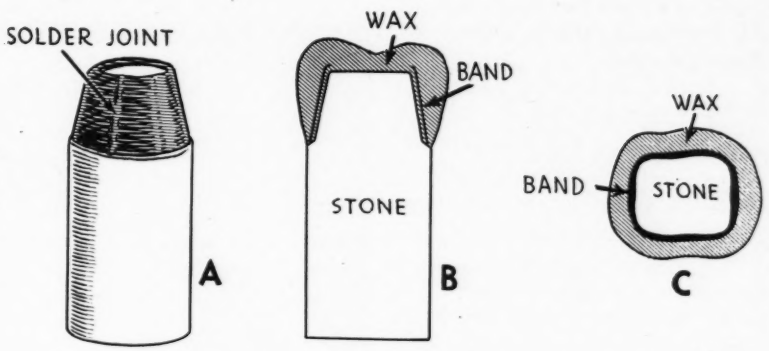
Tooth Preparation

The tooth is prepared as for a gold crown with the exception that a little more of the tooth is removed:

1. Mesial and distal slices must be adequate.
2. The occlusal surface should provide ample room for acrylic.
3. The buccal wall may be ground to provide sufficient room for the acrylic facing if necessary.

Technique

1. When the preparation is completed, a wax bite is taken and a compound tube impression is made. A stone model is poured.
2. An orthodontic band is fashioned to fit the model:



A, Metal orthodontic band fitted on stone model of a molar tooth preparation. B, White wax flowed over metal band of A, restoring tooth to its former contour. C, Cross section of B showing relationship of stone model, orthodontic band, and wax.

a) The band need not fit the model accurately but it should fit down to the gingiva.

b) It is preferred that the band remained unpolished.

c) The height of the band is optional. The most satisfactory height, however, is from the gingiva up to and slightly over the peripheral occlusal edge.

3. White paraffin is flowed directly over and around the band until the suitable size and shape of the tooth is restored.

a) Overextension is advisable because it is easier to trim the wax down to proper occlusion than to add more wax.

b) The wax bite may be used only to determine the height of the occlusal plane.

4. The waxed model is tin-foiled around its periphery and is then ready for investment. After the wax is thoroughly boiled out and the acrylic ready for packing, the flask must be hot. This eliminates flaws and bubbles in the finished crown, and permits the acrylic to flow inside and around the metallic band.

5. The approximal surfaces and the inside periphery may be ground, if necessary, on insertion of the acrylic crown.

6. Normal occlusion should be checked and restored.

7. In the cementing process, the acrylic crown may be seated with any desirable pressure without danger of its breaking. A translucent silicate-oxyphosphate cement (Oxsilit) is recommended.

Comments

A reinforced acrylic crown has great strength and is esthetically pleasing. It supplants the gold crown but has none of its disadvantages. The finished acrylic crown has adequate strength to resist all normal masticatory stresses and will withstand the pull of sticky substances. This restoration is recommended particularly for use on the posterior teeth. The thin coating of acrylic over the metallic re-enforcements is least discernible on bicuspids and molars.

2488 *Grand Concourse.*

Clinical and Laboratory Suggestions*

CHESTER J. HENSCHEL, D.D.S., New York City

III. Prolonging the Usefulness of Contra-Angles

CONTRA-ANGLES, which are harder to obtain today than before the war, have never been long-wearing. This is due chiefly to allowing water or saliva to remain in the gears and bearings overnight. This causes rust, which acts as an abrasive and damages the delicate parts of the instrument. When this occurs daily, the contra-angle cannot last long.

The contra-angle may be completely dried, sterilized, and lubricated at the end of each working day by running it in mineral oil, or even by soaking it for from 30 to 60 seconds with the latch left open in light mineral oil heated to 250° F. (Fig. 3). The oil is carefully heated in a small vessel with a wooden handle, and the temperature is controlled with the use of a thermometer. An inexpensive, accurate glass-clad candy thermometer with a range of from 100°F. to 350° F. can be used effectively. In heating the oil, extreme caution is advised because of fire hazard should oil drip over the outside of the vessel. Stirring the oil will prevent overheating of the bottom layer of oil.

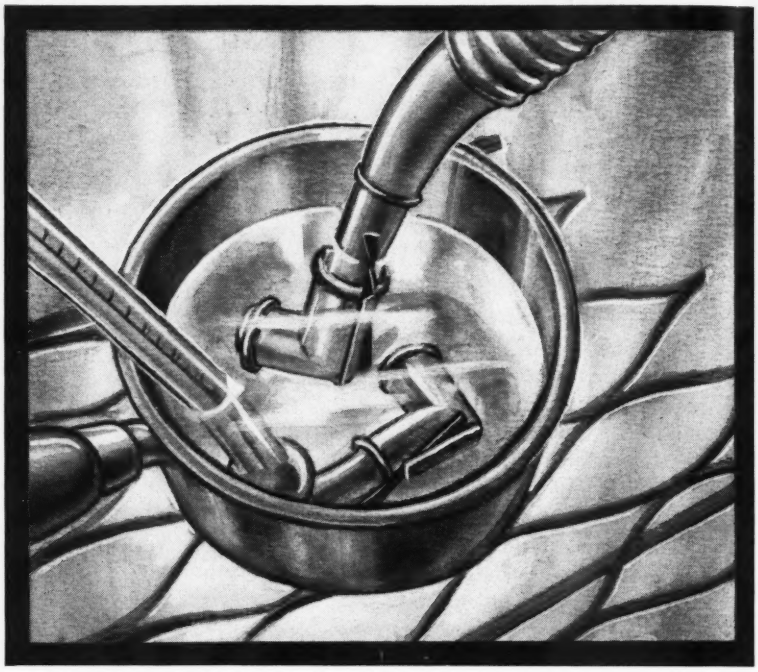


Fig. 3—Contra-angle with latch open is seen soaking in heated light mineral oil; another contra-angle attached to handpiece is being run in the oil.

IV. Long-Lasting X-ray Developing Solutions

Oxygen presents difficulty in roentgenographic development. Air in contact with the surface of the developer in the tank permits evaporation and causes oxidation. Evaporation eventually results in a thick, muddy solution; whereas oxidation weakens the solution and causes opaque, swirling iridescence on the film. A lid on the developing tank, although important in excluding dust, is of little use in preserving the developer, as it encloses a layer of air above the surface of the liquid.

An effective cover for the developer may be made in the form of a wax float which is slightly smaller than the developing tank itself. This floats freely upon the surface of the liquid and is removed only while films are being developed. It is important that the water be boiled to eliminate oxygen. This is done before the developing solution is made by dissolving the powders or liquids in the water. Air contact is negligible when the float is in place on the developer, and removal of the float automatically skims the surface free of any scum.

The float may be made easily and conveniently from a double thickness of base-plate wax cut to size and luted around the edges. A small wax handle may be attached to the top center of the float to facilitate removal. The float should be slightly smaller than the inside of the tank, so that it will neither wedge nor stick; it must float freely (Fig. 4).

V. X-Ray Developer Replenisher for Constant Brilliant Contrast

Although x-ray developing solutions are generally discarded and replaced regularly, this is frequently not done until after the developing time of a film has been prolonged two or three minutes so that roentgenograms begin to appear cloudy.

Standardization of the strength of the developer may be accomplished by the use of a solution replenisher. If the replenished developing solution is used at a constant temperature, the developing time will remain the same, and the resulting roentgenograms will be of equal brilliance and contrast whether the solution is new or old. Another advantage derived from its use is that a half-gallon tank

*These are the third, fourth, and fifth presentations in the series of Clinical and Laboratory Suggestions. Others are to follow.

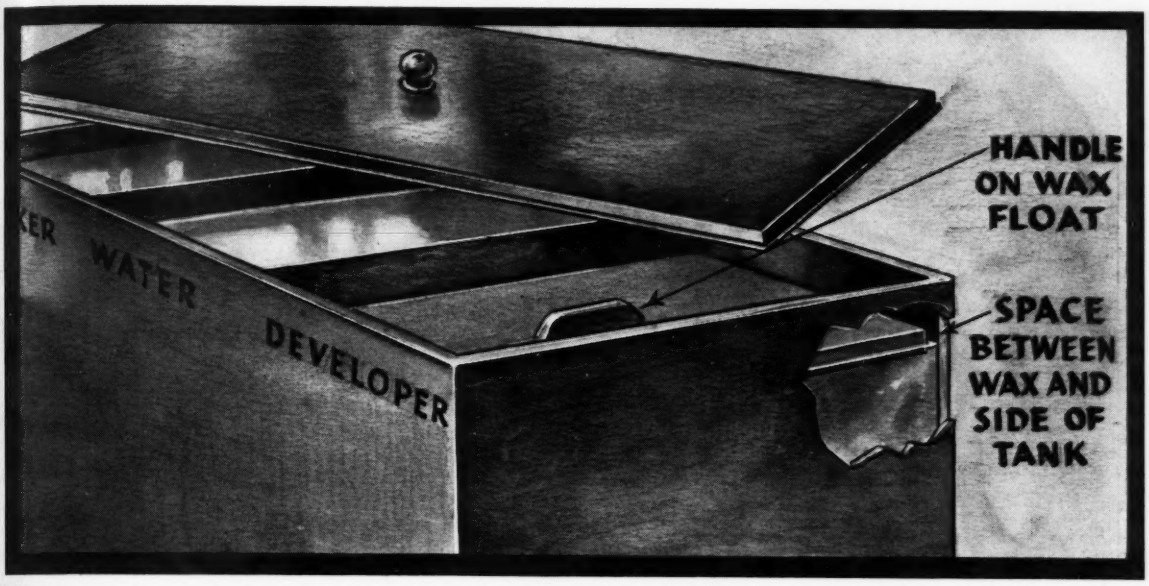


Fig. 4—Large x-ray tank in three sections for fixer, water, and developer. Wax float in place on developer.

of solution need be changed only twice yearly; nevertheless a film developed for 5 minutes at 65° F. in July is as good as one similarly processed in the same solution in October or January.

The developer and replenisher are prepared in the following manner:

1. X-ray powders (Eastman) are dissolved according to package directions in water which has been boiled to eliminate oxygen.

2. The x-ray tank, which is fitted with a wax float (Fig. 2) and a cover, is filled and used in the usual manner.

3. X-ray replenisher powders are dissolved in boiled water according to directions and stored in bottles. The bottles are completely filled. Inasmuch as the replenisher lasts a long time, it may be wise to divide the powder (the package size for a gallon of replenisher) into two portions and prepare only 2 quarts at a time.

The level of the developer drops because of the normal evaporation and the continual removal of wet films. The original level is restored every day or two by adding replenisher (Fig. 5). Similar additions of regular developer are not successful.

Fig. 5—Restoring developer level with replenisher.

1235 *Grand Concourse.*

Unsolicited Manuscripts Are Welcome

"When you have made an observation of value or reached a conclusion concerning the unusual, publish it. Avoid carrying unpublished knowledge to the grave!"—Sir William Osler.

Rebasing a Complete Mandibular Denture

IRVIN H. ANTE, D.D.S., Toronto

DIGEST

Dentures often are dislodged vertically and horizontally from their positions, and function is thus impaired. Correct functional position must be maintained in order to have stable, comfortable dentures. Dentures which have well adapted bases and have balanced occlusion show little tendency to dislodge. Under the demands of function, however, tissues change and dentures require rebasing. The technique described is for rebasing full lower dentures.

Fig. 1—Vulcanite bur and sandpaper arbor used to trim mandibular denture preparatory to rebasing.

THE FUNCTION of the lower denture base is to resist vertical masticatory pressure against the alveolar ridges, while the flanges which rest against the lingual, buccal, or labial sides of the alveolar ridges provide bracing support against horizontal displacement. The denture may be dislodged vertically by the force of gravity, by the adhesion of sticky foods, or by the movement of the cheeks, lips, and tongue, and the muscles beneath the denture. The denture may be shifted horizontally from its functional seat by the lateral excursions of the mandible, or by the impact of the cuspal planes of the posterior teeth.

Although denture movement cannot be prevented entirely, it can be reduced by providing balanced occlusion and by constructing denture bases which resist the masticatory movements without interfering with any of the normal functions. A denture which is lacking in adaptation may settle into a better fit if the occlusion is properly balanced. Conversely, a denture which exhibits good stability when inserted will not retain its stability for long if the occlusion is out of balance. Correct functional position must be maintained in order to have stability of dentures and lasting comfort for the patient.

The denture-bearing tissue areas become the foundation for the structures. The patient's fundamental need, however, is the continued preservation of what remains of the underlying tissues rather than the restoration of that which is missing.

The first requirement in denture rebasing is an understanding of the nature of the tissues concerned and of their possible reaction to the demands made upon them by the wearing of dentures. The dentist should understand which areas are best suited to withstand the thrust delivered by functioning dentures. The thrust and recoil should serve to stimulate

Fig. 2—Plastic wax applied to underextended areas of mandibular denture to obtain unbroken contact with movable soft tissues.

the tissues and to restore their natural resiliency. At the same time, other parts of the mouth should be protected from overdisplacement or distortion to prevent anemia, trauma, or atrophy of the tissues.

Visual and Digital Examination

Inasmuch as no two patients' mouths are alike, there is no formula for solving the difficulties of variations in anatomic form or function of the tissues supporting the dentures. Every mouth presents anatomic and biologic factors which should be considered. The physical condition of the tissues should be carefully surveyed, and the probability of successful treatment estimated. The visual and digital examination of the mouth will give the operator a mental picture of the variations in resiliency and the anatomic landmarks, thus warning him when a modification of the technique is necessary.

An examination will reveal the physical condition of the tissues; the amount of resorption; the peripheral muscle attachments; the size and form of the vault, ridges, tongue, and throat; the thickness of the mucosa; and the condition of the saliva. Such an examination will also disclose hard areas, such as palatine or lingual torus; sharp ridges and processes, or prominent tuberosities; and low muscle attachments.

The most important observation is the degree of muscle tone. The patient who is edentulous because of periodontal disease, syphilis, diabetes, or nutritional deficiencies has low muscle tone. High muscle tone is usually associated with the loss of teeth due to apical infection or caries. If a systemic condition has been the cause or a contributory factor in the loss of teeth, a progressive destruction of the tissues supporting the denture may be expected, and frequent rebasing of the denture will be necessary.

The Impression

Making a good impression is the first step in denture rebasing. The impression should provide adhesion and stability for the finished denture. The success of an impression depends largely on the accuracy of the peripheral outline and of the peripheral seal. It is necessary to sustain the denture while lateral strains are being applied during mastication because the force of mastication is greater than the adhesive force.

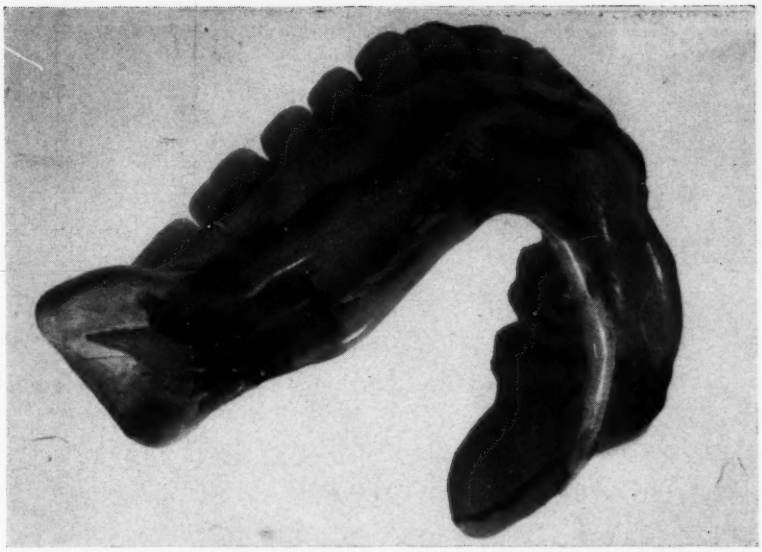


Fig. 3—Plastic wax added to ridge side of mandibular denture in anterior and first molar areas to increase height of denture for esthetic reasons.

Adhesion—Adhesion is the continuous force necessary to retain the dentures in position against vertical dislodgment. The greater the denture outline or area in contact with oral tissue, the greater is the adhesive force. A reduction in the area coverage of the base reduces the adhesive force proportionately. A thick mucous membrane simplifies the problem of retention (adhesion), but makes the problem of stability difficult. The more viscid the saliva, the greater is the degree of retention. Adhesion will be secured between the impression and the mucosa if the balance of tissue tension is uniform throughout and no tissue is displaced beyond physiologic endurance.

Peripheral and Postdam Seal

Peripheral and postdam seal are necessary to prevent air and moisture

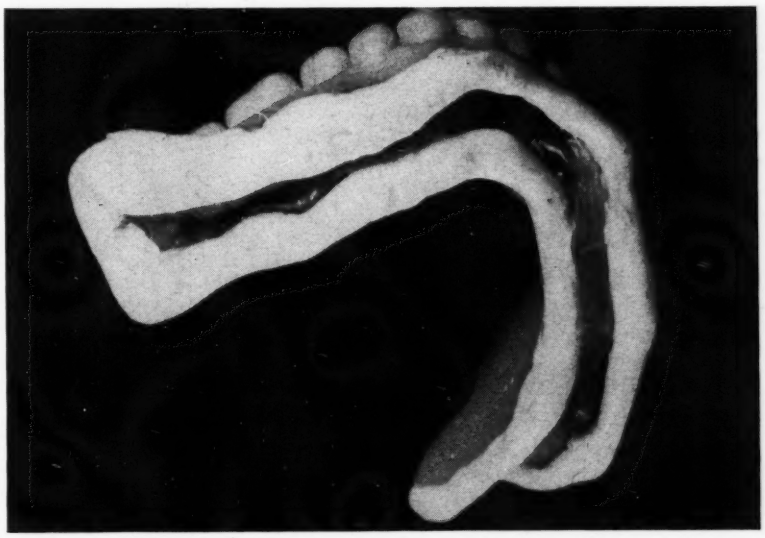


Fig. 4—Zinc oxide-eugenol paste on peripheral borders of mandibular denture.

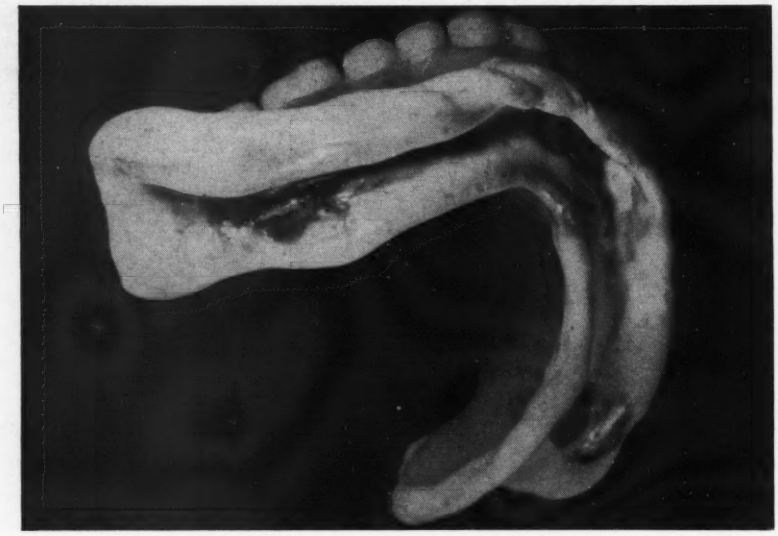


Fig. 5—Impression of mandibular ridge.

from creeping in between the base and the tissues, thus destroying the adhesive force. The seal retains the denture base while lateral strains are being applied during mastication, and permits greater movement of the denture base while the border tissues are undergoing functional movement.

When the ridges are greatly resorbed, it becomes necessary to extend the peripheral seal upon the reflected mucosa. An effective peripheral border seal is obtained by extending the denture border into the vestibule to occupy its full width. The mucosa under the buccal and labial flanges, however, is never compressed.

Rebasing the Mandibular Denture

1. Trim the lower denture free of all muscle attachments and to the tissue flexion line in all areas; remove all undercuts (Fig. 1). The sandpaper arbor and a vulcanite bur are suitable for this purpose.

2. Bevel the labial, buccal, and lingual borders of the flanges to a depth of about 3 mm. on the outside surface.

3. Test the denture for border interference under all tongue positions and exaggerated muscle movements.

4. Add wax which melts at a low temperature, such as Kerr's plastic, to all underextended areas to obtain unbroken contact with the movable soft tissues (Fig. 2).

5. Muscle-mold the wax sufficiently to hold the denture in place without interfering with the border tissue while undergoing functional movements.

6. Stability is obtained by extending the wax at the heels buccally and backward until it covers and turns upward on the face of the ramus. The wax should extend distobuccally into the buccal fold (retromolar fossa area) to parallel the external oblique ridge.

7. Massage the wax to place with the fingers on the outside of the cheek while the patient holds the mouth open.

8. Extend the wax downward on the lingual side below the mylohyoid ridge in the first molar and bicuspid region (sublingual fossa area). If it is impossible to extend the wax into this area, make every attempt to lengthen the lingual flange below and behind the third molar (posterior sublingual area). The denture should not depend on the lingual undercuts for mechanical retention; however, firm contact with the soft tissues is important along the entire lingual border.

9. Dry-heat and muscle-mold the newly added wax, using all exaggerated muscle movements and tongue positions. The denture should not be displaced by any lip, cheek, or tongue movements when held down with light pressure. When the ridge is greatly resorbed, it may be necessary to extend the wax upon the reflected mucosa in the retromolar fossa and sublingual fossa areas to obtain added peripheral seal.

10. Chill the wax and test for stability.

11. Correct the occlusion in centric and in all mandibular movements.

12. Should it be necessary to increase the height of the lower denture for esthetic reasons, place small squares of plastic wax on the ridge side of the denture in the anterior or cuspid areas and in the first molar area (Fig. 3). Press the denture to the mandible.

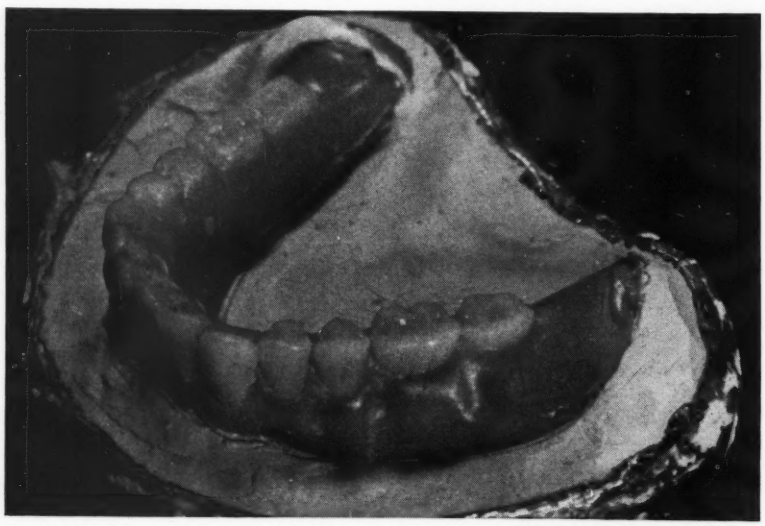


Fig. 6—Mandibular denture in lower half of flask. Note plaster flush with upper edge of impression material.

13. Instruct the patient to close the mouth in centric and to exert light pressure until correct nose and chin distance is obtained.

14. Remove the impression and chill.

15. Make further corrections if necessary by adding more wax or scraping off the excess wax for relief where required.

16. Trim off the excess wax with a sharp knife to the trimmed outside surface of the peripheral border. The wax should show well rounded muscle-molded borders of not less than 3 mm. thickness.

17. Chill thoroughly.

18. Zinc oxide and eugenol paste, such as Coe-Trans, is unexcelled as an impression material for rebasing. Mix the paste and spread it on the peripheral borders of the denture (Fig. 4).

19. Place the denture on the mandible in proper position and agitate it gently into place.

20. Instruct the patient to open the mouth wide and to protrude the tongue, then to move the tongue to the corners of the mouth and to lick the upper lip. He should then close the mouth lightly in centric.

21. Muscle-mold the outer flange by gently patting the cheeks and lips upward, and instruct the patient to say "oh" and "eeee."

22. Have the patient place the tip of the tongue on the lower anterior teeth and press gently while the mass is hardening. This pressure fixes the mass close to all lingual border surfaces and insures a valve seal.

23. Remove the denture and chill (Fig. 5).

24. Test the denture for correct centric occlusion and for stability in all functional positions of the tongue, lips, and cheeks.

25. Place the denture directly into the lower half of the flask. Allow the plaster to extend up flush with the upper edge of the wax or impression material (Fig. 6). Tin-foiling is optional.

26. Apply separating media and pour the upper half of the flask.

27. Allow the plaster to harden.

Fig. 7—Entire surface of denture base being reduced with vulcanite bur.

Fig. 8—Dough-like acrylic in place in the impression side of the flask. A piece of rubber dam is used to separate the two parts of the flask.

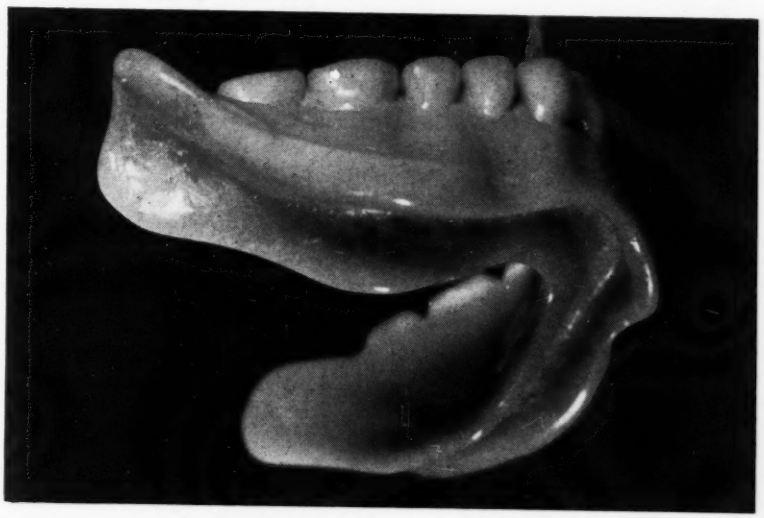


Fig. 9—Rebased complete mandibular denture.

28. Place the flask in cold water and heat. When the temperature of the water reaches 150° F., separate both halves of the flask and pick out the softened wax and impression material.

29. Flush the flask with boiling water and, while the plaster is hot, paint both halves of the flask with a chemical separator, such as Justi Film, R. R. Colorgard, or Separlac.

30. Remove or freshen the entire surface of the denture base including the peripheral border up to the plaster. A sandpaper arbor and a large vulcanite stone or bur are suitable instruments for this purpose (Fig. 7).

31. Be sure that the flask is cold, then press the dough-like acrylic to place on the impression side of the flask (not the denture side). Rubber dam (not cellophane) is used to separate the two halves of the flask (Fig. 8).

32. Place the flask in a heavy press and close slowly until the excess plastic squeezes out from between the halves of the flask. Open the flask and trim off the excess acrylic.

33. Press the flask again; repeat the procedure until there is no excess material when the halves are in close contact with the dam between them.

34. Before finally closing both halves of the flask, swab the old denture with a few drops of acrylic liquid on a piece of cotton. The final closing of the flask is done slowly, for 2 or 3 minutes.

35. Immerse the flask and the press in warm water. Allow the temperature of the water to reach 160° F. in about one hour. At this temperature close the press once more and continue to boil for half an hour.

36. Remove the flask and the press from the boiling water, and allow the flask to cool slowly (over night) to room temperature.

37. Remove the denture from the flask for finishing, and preserve the well rounded peripheral borders as is shown in Fig. 9.

918 *Medical Arts Building*

DENTAL MEETING Dates

District of Columbia Dental Society, second Tuesday in each month, Medical Society Auditorium, Washington.

•

Ohio State Dental Board of Examiners, regular meeting, Ohio State University, College of Dentistry, February 28-March 1. For information write to Doctor Earl D. Lowry, Secretary, 79 East State Street, Columbus.

•

Southwestern Society of Orthodontists, regular meeting, Shreveport, Louisiana, February 28-March 2.

•

New York Society of Orthodontists, regular meeting, New York City, March 6-7.

The Thomas P. Hinman Mid-Winter Clinic, Municipal Auditorium, Atlanta, Georgia, March 26-28.

•

The Women's Dental Society of New York City, regular meetings held March 15, May 17, September 20, and November 15, Hotel Pennsylvania, New York City.

•

The American Society for the Advancement of General Anesthesia in Dentistry, Spring meeting, National Republican Club. 54 West 40th Street, New York City, March 27.

•

Old Dominion Dental Society, annual meeting, Farmville, Virginia, April 10-11.

•

Indiana State Board of Dental Examiners, regular meeting, Indianapolis, April 24-27. For information write to Doctor C. A. Frech, Gary National Bank Building, Gary.

•

The Cleveland Dental Society, annual Spring meeting, Hotel Carter, Cleveland, May 8-10.

•

Indiana State Dental Association, eighty-seventh annual meeting, Claypool Hotel, Indianapolis, May 15-17.

Tennessee State Dental Association, seventy-sixth annual meeting, Hotel Peabody, Memphis, May 22-25.

•

Ontario Dental Association, seventy-seventh annual meeting, Royal York Hotel, Toronto, May 29-31.

•

New Mexico State Dental Association, annual meeting, Albuquerque, June 4-6.

•

The Northeastern Dental Society Swampscott Convention, New Ocean House, Swampscott, Massachusetts, June 11-14.

•

New Jersey State Board of Dental Examiners, regular meeting, Trenton. June 28-July 2. For information write to Doctor J. Frank Burke, 150 East State Street, Trenton.

•

North Dakota State Board of Dental Examiners, regular meeting, Gardner Hotel, Fargo, July 10-13. For information write to Doctor R. A. Andrews, Secretary, Carrington, North Dakota.

The Editor's Page

TWO OPPOSING points of view were developed before the recent Postgraduate Assembly on Nutrition in Wartime[1] sponsored by the Institute of Medicine of Chicago. One of the speakers, Frank K. Gunderson of the National Research Council, expressed the opinion: "According to the best information available there was greater consumption of important nutrients per capita by the American civilian public in 1943 than there was during the average of the prewar period 1935-1939. In spite of the many shortages of certain foods in certain localities during the last year or two, the people of the United States as a whole have fared very well nutritionally. There is no nutritional crisis and the probabilities are there will be none." The opposing view was well expressed by the eminent physiologist, Anton J. Carlson of the University of Chicago: "I fear that relative poverty is going to increase malnutrition in our Nation in consequence of the war. My reason for this fear is that despite 'ceilings' the cost of good foods is going up and up; and there are millions of Americans at the lower income level who do not share in our wartime 'prosperity.' Hidden taxes on some good foods add to this difficult situation."

It is almost impossible to evaluate with scientific accuracy the impact of the war on the nutrition of the American people. One reason for this, as Colonel Leonard G. Rowntree of the Selective Service System points out, is that "statistics on nutritional deficiencies are not now and never have been ideal." Another reason is that the results of malnutrition, unless seen in conditions of actual famine, are not immediately observable. The sequelae of malnutrition appear in after years. Primary nutritional deficiency (beriberi, scurvy, pellagra, rickets, malnutrition, night blindness, and underweight) was found in 3.2 per cent of a group of registrants examined during peacetime by the Selective Service System. When the stigmata of the secondary nutritional diseases were recorded, however, 43 per cent of the men examined were considered to be nutritionally deficient. According to Colonel Rowntree, the secondary nutritional diseases included lesions of the eyes, teeth, soft tissues of the mouth, cardiovascular system, kidneys, skin, and musculoskeletal system. Endocrine deficiencies, tuberculosis, blood dyscrasias, some mental disturbances, and general unfitness, are other conditions that result from nutritional deficiencies.

The conflicting points of view expressed by Mr. Gunderson and Professor Carlson represent the paucity of accurate data on the prevalence of nutritional deficiency. Colonel Rowntree, with good sense, suggests that an adequate statistical program at the national level should be developed. He believes that such a program "would serve a valuable purpose in pointing the way to present and future planning in connection with dietary requirements of the population."

The absence of adequate protein in the diet is to be feared, according to several of the speakers who appeared before the Postgraduate Assembly. Sidney C. Madden of the University of Rochester School of Medicine and Dentistry expressed this opinion: "Interest in good nutrition centers rightly on good protein nutrition. . . . Many hazards of protein malnutrition are now recognized. Some of these are increased susceptibility to infection, lowered resistance to toxins, and impaired ability to heal wounds. Some of these hazards are known to arise after brief periods of fasting."

The mechanism whereby decreased resistance to infection follows hypoproteinemia was clearly described by Paul R. Cannon of the University of Chicago:

> The basic significance of these facts may be summarized as follows: Inasmuch as the antibody mechanism is the keystone of the structure of acquired resistance, interference with antibody production must lower acquired resistance. Furthermore, since antibodies are proteins, i.e. specifically modified serum globulins, their fabrication must be similar to or identical with that of normal globulins. The serum globulins are complex proteins compounded of many amino acids, including several essential ones; therefore it is obvious that both normal serum globulin and antibody globulin require, for synthesis, the dietary presence of a large variety of amino acids. When the supply of amino acids is scanty, globulin synthesis must be impaired until, with exhaustion of the protein reserves, the capacity to form new globulins becomes definitely limited. Concomitantly, the ability to supply protein nutriment to the bone marrow and the lymphoid organs for production of phagocytes may also diminish. When infection starts under these conditions of depletion of the protein reserves, both the capacity to fabricate antibodies and to manufacture and liberate phagocytic cells into the blood is hampered. The infectious agents thus tend to grow and spread and the infection may become quickly lethal.

Speaking on "Teeth as an Index of Nutrition," Julian D. Boyd of the University of Iowa made these sensible remarks:

> In view of the general prevalence of caries and its preventability through improved diet, one must conclude further that most children fail to receive diets which meet their full nutritional needs. Other evidences point to the same conclusion. Better diets not only lessen the incidence of caries; they lead as well to improved levels of health, function, and physique. Prevention of tooth decay is possibly the most tangible of the benefits to be derived from improved diets, yet it may not be the most important end to be gained. Both physicians and dentists should recognize the significance and seriousness of tooth decay, and should cooperate in efforts to enhance the health of the whole child through betterment of prevalent diet practices.

[1]Proc. Inst. Med. Chicago, 15:16-33 (January 15) 1944.

SURE, that Saturday night pay envelope's bulging. But let me tell you something, brother, before you spend a dime . . . *That money's mine too!*

I can take it. The mess out here. And missing my wife and kid.

What I *can't* take is you making it tougher for me. Or my widow, if that's how it goes. And brother, it *will* make it tough—if you splurge one dime tonight. You're making money. More money than there's stuff to buy. Money that can sock the cost of living to kingdom come—if you blow it! So hang on, till the job's done. On to every last dime—till the squeal means a hole in the seat of your pants!

You're working . . . and *I'm fighting* . . . for the same thing. But *you* could lose it for both of us—without thinking. A guy like you could start bidding me right out of the picture tonight. And my wife and kid. There not being as much as everybody'd like to buy—and you having the green stuff. But remember this, brother—everything you buy helps to send prices kiting. Up. UP. AND UP. Till that fat pay envelope can't buy you a square meal.

Stop spending. For yourself. *Your* kids. And mine. That, brother, is sense. Not sacrifice.

Know what I'd do with that dough . . . if I'd the luck to have it?

I'd buy War Bonds—and, God, would *I* hang on to them! (Bonds buy guns—and give you four bucks for your three!) . . . I'd pay back that insurance loan from when Mollie had the baby . . . I'd pony up for taxes cheerfully (knowing they're the cheapest way to pay for this war) . . . I'd sock some in the savings bank, while I could . . . I'd lift a load off my mind with more life insurance.

And I wouldn't buy a shoelace till I'd looked myself square in the eye and knew I couldn't do without. (You get to knowin'—out here—what you can do without.)

I wouldn't try to profit from this war—and I wouldn't ask more for anything I had to sell—seeing we're all in this together.

I've got your future in my rifle hand, brother. But you've got both of ours, in the inside of that stuffed-up envelope. You and all the other guys that are lookin' at the Main Street shops tonight.

Squeeze that money, brother. It's got blood on it!

Use it up . . . wear it out, make it do...or do without

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A United States war message prepared by the War Advertising Council; approved by the Office of War Information; and contributed by the Magazine Publishers of America

Contra-Angles

This is the Hundredth Year . . .

This year is the centennial of the discovery of anesthesia. Many fustian words will be written and many long speeches will be made in commemoration of Horace Wells. What can be said about him most eloquently can be said in a few words. At no time should we forget that Wells was a dentist and that the glory he brought to dentistry is a glory that should give us all pride. Wells was not a scientist. He was an imaginative, practical man. He was a practicing dentist who learned his skills under a preceptor. In turn, Wells taught other men; notably William T. G. Morton, who is credited in the Hall of Fame as the discoverer of ether anesthesia, and John M. Riggs, one of the pioneer periodontists of the world. It was Riggs who removed a third molar from Wells under nitrous oxide anesthesia administered by G. Q. Colton. Wells was the discoverer of anesthesia, not by precise experiments performed in a laboratory but by being the subject of the operation himself. This is direct scientific experimentation not detached from the stream of life.

Wells, unlike his pupil, Morton, did not have a commercial attitude toward his discovery. He repeatedly asserted his professional philosophy by stating: "I do not wish, or expect, to make any money out of this invention," and "I was so much elated with this discovery, that I started immediately for Boston, resolving to give it into the hands of proper persons, without expecting to derive any pecuniary benefit, therefrom." Morton, on the other hand, patented the use of ether. This is the way he stated his philosophy: "I

have patented it [ether] and am now sending out agents to dispose of the right to use it. I will dispose of a right to an individual to use in his own practice alone, or for a town, county or state. My object in writing you [Wells] is to know if you would not like to visit New York and the other cities to dispose of rights upon shares." No two men were more unlike in their ideals than were Wells and Morton.

Horace Wells was in many respects a sad personality. He was accused of perpetrating a humbug upon the world. He was looked upon as an impostor and a faker. During his life he was never given the credit that he earned. Wells was an unstable person. He flitted about and was in and out of practice. He was inventing shower baths and promoting bird exhibitions when he should have been tending to the development of anesthesia. He died by his own hand at the age of thirty-three, four years after his beneficient contribution. The morbid circumstances of his death suggest a mind uneasy and deranged.

It is true that Wells was preceded by the southern country physician, Long, who used ether in surgical procedures in 1842, but Long had neither the imagination, the ambition, nor the wish to announce the nature of his discovery. Long did not publicize his use of ether, offer it in demonstration, nor give it to the world. He has not been accused of being the inventor of a secret formula or of a patent medicine. The most charitable thing we can say about Long is that he did not realize the importance of the chemical agent which he used to produce unconsciousness. He withheld it from the world; Wells announced his discovery to all mankind.

This centennial of Wells should be celebrated proudly by the dental profession. His greatness shines through his eccentricities, his tribulations, and the tragic manner of his death. It is his fame that we should remember.

Students in Uniform . . .

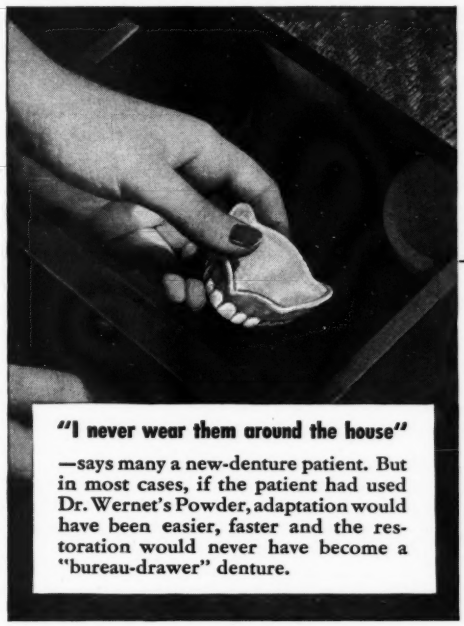
The facilities of the dental schools of the country have been taken over

by the Army and Navy. The dental students in uniform are among the 200,000 young men now serving under the Navy V-12 and the Army Specialized Training Programs. The idea of the Army and Navy in supplying free education to American young men is to guarantee the supply of dentists for the armed forces. At this stage there is no thought, or at least no expressed ambition, among military people to prepare young men to serve the government in any except military capacities. No one could say with fairness that the subsidizing of dental education by the government is a subterfuge to prepare dentists to practice under some "socialistic" system. It is quite possible, however, that the experience under these government programs will have far-reaching effects in postwar years. It it quite conceivable that in the future the government will train young men and possibly young women, will finance their education, and will in turn expect them to serve governmental agencies.

Doctor Malcolm M. Willey, Professor of Sociology at the University of Minnesota, writing in *The Annals of the American Academy of Political and Social Science*,[1] comments: "Here, in wartime, is a new conception of democratic education. It frankly raises the question of what the responsibility of government is to be once the war is over. Are the thousands of men who have had the advantages of the war program of higher education likely to forget the fact that a government which needed their services in war was willing to meet the costs that were involved in training them? Are these same men not likely to ask why there is not a parallel responsibility on the part of government to train them for peacetime service as well? It seems unlikely that our basic educational philosophies will remain untouched by the implication of the war programs. And it will be difficult to dismiss the argument that a nation that spends hundreds of millions in higher education for war should be willing and

[1]Willey, Malcolm M.: The College Training Programs of the Armed Forces, Ann. Am. Acad. Pol. & Soc. Sc. 231:14-28 (January) 1944.

"Bureau-Drawer" Dentures



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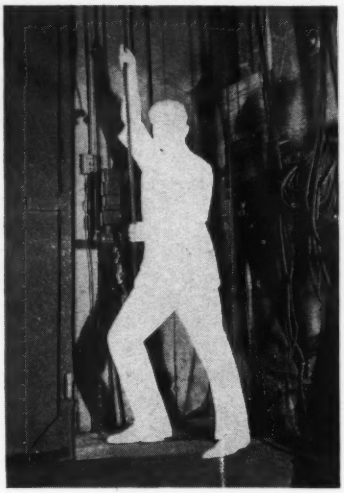

—featured in February ORAL HYGIENE—was written by a nationally known dental speaker (not a member of the magazine's staff) who tells in plain English what is wrong "behind the scenes." And he presents constructive suggestions for improvement.

Oral Hygiene's Dental Opinion Poll on the Wagner-Murray-Dingell Bill is reported by Rosa Huger of Northwestern University, which sponsors the ORAL HYGIENE Polls. Don't miss this! Believe it or not, but some dentists are *for* the bill. And a new poll, on dental hygienists, starts this month.

"So You're Going to be an Oral Surgeon," by Doctor John Jacob Posner, is another down-to-earth article about the facts of dental life.

"The Dentist Takes a Wife," by Doctor Lester G. Glick, is in a lighter vein. Some fun! And you'll enjoy it.

"The Dental Saboteur," by Doctor Harry Maeth, recounts an incident which "will not serve to develop a healthy opinion of dentistry."

"Dentists Behind Barbed Wire Fences," by Doctor M. M. Nakadate, tells the experience of a Japanese dentist who has now passed his final type physical examination and interview for the U. S. Army.

"How to Beat the Telephone Chiseler," by Al Jacobson, may save dentists some money.

Eight Oral Hygiene departments this month: "Military News, Ask Oral Hygiene, Technique of the Month, Editorial Comment, Picture of the Month, Dentists in the News, Laffodontia, and The Publisher's Corner.

In your February

Oral Hygiene

under obligation to spend at least equivalent amounts for higher education for peace. This, perhaps, is the most important point raised by the Army-Navy training programs, and is the one to which higher education should be devoting its most intensive thought."

An entirely new philosophy in education has crept into the selection of young men for government college training. Neither wealth nor social position have anything to do with the selection of men. Each man is selected according to his capabilities and interests. His aptitudes are determined by screening tests. He is then assigned to service in a college that gives training suitable to his talents. There is some apprehension at the present time that dentistry may be receiving the dregs that are left after the screening process of young men thought to be suitable candidates for medical education. Dentistry must protest violently if men are being assigned to dental schools by the test of second best; that is, if they are men who could not quite meet the qualifications for medical training.

Some of the young men now receiving training under the A. S. T. P. and the V-12 programs are asking what their future might be should the war end soon and suddenly. They are wondering if the government will keep on training them and send them after graduation to some faraway place to serve in the occupational governments that will be scattered throughout the world. It is probable that with both the Army and Navy conducting schools in military government and administration, health facilities will be set up in occupied countries. If so, we have every reason to think that dental care will be offered as a part of these health activities.

There is some danger, as the experts have pointed out, that the government-subsidized training programs lean entirely too much to the mechanical and physical sciences and that the humanities are forgotten. Humanities, however, must wait while we proceed with the job of mechaniz-

(*Continued on page* 89)

ed warfare. Culture is always in suspended animation during a war. After the war we may expect to see broad, subsidized educational programs throughout the United States, not only for returning veterans but for qualified young people who heretofore could not afford higher education.

On the Grading of Teachers . . .

Writing on the subject of dental education brings to mind a subject which is never discussed among the learned dental educators. Assuming the risk of body and limb and entering the field of iconoclasm, I propose that henceforth students grade their teachers as well as the teachers grading the students. Almost every dental college has at least one teacher who inflicts his boring presence upon the students. Sometimes he holds the job because he is related to the dean or was friendly with him in the "old days." He may be a fixture that has been in the place so long that no one wishes to disturb him or to dust under his feet. He is a fellow who knows little, and what he does know he tells poorly. He has no way of knowing whether or not the students learn anything from his courses. Students in general have found that it is better to "polish the apple" than to get in difficulties with teachers or to engage them in argumentation. This lack of controversy breeds the "little king" complex. The teacher believes that he is an oracle and that whatever he enunciates is the Law and the Prophets.

If the student were to grade the teachers, he would be able to say and record things that he could not even suggest in a direct and personal way. Naturally, the teacher who is graded would not see the papers; they would be turned over to the administrative officials of the school. If such a system were put into use, some of the "dead wood" which clutters up dental faculties might be tossed into the fire. This is a suggestion that will not be well received by the Association of Dental Teachers.—E. J. R.

Use of Sodium Fluoride for Desensitizing Dentine

WILLIAM H. HOYT, D.D.S., and BASIL G. BIBBY, D.M.D., Ph.D., Boston

The following experiments were made recently at Tufts College Dental School to determine the effects of applications of sodium fluoride mixtures on the sensitivity of the teeth:

Aqueous Solution

1. Areas of sensitive dentine were treated with a 2 per cent aqueous solution of sodium fluoride. Obtunding effects, although slight, were definite and suggested the desirability of using more concentrated solutions.

2. A 4 per cent solution was employed (saturated solution of sodium fluoride in water):

a) With solutions of this concentration, repeated treatment gave more definite obtunding effects.

b) There was no escharotic action on the soft tissues, nor were there any unforeseen results.

c) Approximately twenty patients were treated with the 4 per cent solution, all of whom reported some degree of desensitization.

d) Exceptions were noted only where areas of hyaline dentine had been treated.

Paste

1. Sodium fluoride was incorporated into a paste with white clay and glycerin. Several mixtures of this kind were tested, with the sodium fluoride percentage ranging from 10 per cent to 33.3 per cent.

2. The most satisfactory results were obtained with the 33.3 per cent paste (1 part sodium fluoride, 1 part white clay, and 1 part glycerin). Use of this paste produced desensitization in almost every instance with the first application.

3. Inasmuch as this paste contained glycerin, a dehydrating agent, it seemed possible that the obtunding effect might be due to the dehydration of the dentinal tubules, with consequent loss of their capacity for conducting pain. A series of control tests were made, therefore, to determine whether the desensitization was caused by the fluoride or by other constituents:

a) Six highly sensitive teeth were treated with a paste containing no sodium fluoride. In no instance did desensitization occur.

b) Subsequent treatment of the same teeth with the 33.3 per cent sodium fluoride paste produced desensitization.

4. It became evident that the results with sodium fluoride paste were remarkably satisfactory.

a) After short treatments, teeth which had caused trouble for years ceased to be sensitive.

b) Patients commented voluntarily on the satisfactory results of the fluoride applications, and requested treatment of other sensitive teeth.

c) It became obvious that, in desensitizing effects, sodium fluoride was greatly superior to any of the obtundents previously used.—
from *J.A.D.A.*, 30:1372 (September 1) 1943.

National Dental Salvage Program

THE NATIONAL Dental Salvage Program is headed by the American Dental Association Salvage Committee, which consists of the Chairman, Doctor Carl H. Sachse of Schenectady, New York, and four members: Doctor J. V. Gentilly, Cleveland, Ohio; Doctor Fayette Williams, Corinth, Mississippi; Doctor H. E. King, Omaha, Nebraska; and Doctor Harold J. Cronin, Springfield, Massachusetts. The plan of the organization is to appoint a dental salvage committee in each state; the committee to consist of a chairman and several members. Each state is to be divided into districts; each district to have its dental salvage committee. The chairman of the district committee is to select representatives from the dental dealers and dental laboratories within his area to cooperate with his committee. The state committees should likewise enlist the cooperation of members of the National Dental Association (Negro) within their states.

Donald Nelson, Chairman of the War Production Board, has stated, "We are faced with a serious shortage of steel scrap, rubber, and other vital materials. That shortage must be filled." The purpose of the National Dental Salvage Program is to fill this shortage by: (1) the collection of all scrap metals and vital war materials; (2) the collection of all usable materials; (3) the collection of broken and rusty instruments which can be repaired; and (4) the stimulation of conservation of vital materials on hand. All dentists, whether or not they are members of the American Dental Association, are urged to donate the needed material, as are dental schools, laboratories, and trade houses.

The vital materials required are copper, steel, tin, iron, aluminum, and paper. All of them can be found among discarded and obsolete dental equipment and appliances, a few of which are suggested:

1. Copper: models, wire, tubing, casting rings.

2. Steel: forceps, lancets, burs, knives, handpieces, mandrels, contra-angles.

3. Tin: wrapping on colloidal materials, foil from toothpaste tubes, plaster cans.

4. Iron: vises, parts of equipment, Bunsen burners.

(*Continued on page* 94)

See page 53 D.D.2

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(*Continued from page* 91)

5. Aluminum: mouth mirror handles, old dentures, hypodermic tube caps.

6. Paper: dental magazines, newspapers.

Each state committee should operate as a unit with a definite program and a specific objective. A time and duration for a drive should be set; allowing sufficient time for preparation, organization, and publicity, and for the accumulation of materials. The state committee should request periodic reports from its subcommittees, and should tabulate the results. Return reports made periodically to the subcommittees will stimulate the efforts of the smaller groups.

Salvage depots (fire houses, school houses, gas stations, and the like) are to be designated by the local committees, which will likewise have charge of the disposition of the materials collected. Bulky scrap metal and heavy equipment can be accumulated in cellars or back rooms, and smaller discarded equipment, such as the forementioned, can be collected in small receptacles in professional buildings. Small pieces of vital material, if kept separate from that collected for drives, are welcomed by junk dealers. Paper is likewise collected by junk dealers and by the Salvation Army. The approximate weight of the materials should be recorded for the final reports to the committees. The conduct of the drive will be more efficient if the collection of dental scrap material is synchronized with municipal collections. Local War Production Boards are glad to cooperate and advise officially toward a successful campaign.

The publicity program can be carried out through: (1) releases by the district and state salvage committees in newspapers, and by the government in general salvage bulletins; (2) editorials in dental publications and trade journals; (3) notices on programs of meetings of professional societies and study clubs; (4) remarks by speakers and clinicians; and (5) stickers on laboratory boxes and periodic statements from dealers. Periodic publicity campaigns will promote and sustain the interest of the public.

Much of the expense incurred in promoting a salvage campaign can be defrayed through budget allotments from the component societies, and the proceeds from the sale of scrap metal and paper. Ads sponsored by dental supply houses and laboratories, and voluntary stenographic services by the local war councils will do much to reduce such expenses.

If a local dental reference library were established for the collection of old and new professional magazines, all collections of back numbers of dental publications in homes and offices could be turned in during the paper drive. Paper is a vital item during the war and every effort should be made to collect as much paper as possible. The disposition of amalgam, one of the most valuable metals today, is usually taken care of by individuals. A local campaign for its collection would be a profitable source of this vital metal.

The proceeds from a local drive can be used in many ways: to pay the expenses of the campaign; to buy war bonds; as a gift to a dental

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foundation; in payment of professional society dues (such as the American Dental Association) for servicemen; or for any specific purpose decided by the local committee or society in charge.

The chairman of each state committee is to report the results of the salvage program in his state to Doctor Carl H. Sachse, Chairman of the Committee on Dental Salvage, American Dental Association, 817 State Street, Schenectady 7, New York. This report should include the approximate amount of scrap material collected, the proceeds realized from the sale of such material, and the disposition of the proceeds of the collections.